

WHAT IS CLAIMED IS:

1. A glycosyl sulfotransferase present in other than its natural environment, wherein said glycosyl sulfotransferase is selected from the group consisting of GST-4 α , GST-4 β , and GST-6.
- 5 2. The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl sulfotransferase is a human glycosyl sulfotransferase.
3. The glycosyl sulfotransferase according to Claim 1, wherein said glycosyl
10 sulfotransferase has an amino acid sequence substantially identical to the sequence of SEQ ID NOS:07, 8, 9, 13, or 15.
4. A fragment of the glycosyl sulfotransferase according to Claim 1.
- 15 5. A nucleic acid present in other than its natural environment, wherein said nucleic acid has a nucleotide sequence encoding a glycosyl sulfotransferase according to Claim 1.
6. A nucleic acid according to Claim 5, wherein said nucleic acid has a nucleic acid sequence that is substantially identical to or the same as the nucleotide sequence of SEQ
20 ID NOS:01, 02, 03, 04, 05, 06 10, 12, 18, or 19.
7. A fragment of the nucleic acid according to Claim 5.
8. An isolated nucleic acid or mimetic thereof that hybridizes under stringent
25 conditions to the nucleic acid according to Claim 5 or its complementary sequence.
9. An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid having a nucleotide sequence found in the nucleic acid

according to Claim 5 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression host.

10. A cell comprising an expression cassette according to Claim 9 as part of an
5 extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

11. The cellular progeny of the host cell according to Claim 10.

10 12. A method of producing a glycosyl sulfotransferase according to Claim 1, said method comprising:

growing a cell according to Claim 10, whereby said glycosyl sulfotransferase is expressed; and

isolating said glycosyl sulfotransferase substantially free of other proteins.

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13. A monoclonal antibody binding specifically to a glycosyl sulfotransferase according to Claim 1.

14. The antibody according to Claim 13; wherein said antibody inhibits sulfation
20 activity of said glycosyl sulfotransferase.

15. The monoclonal antibody according to Claim 13, wherein said antibody is a humanized antibody.

25 16. A method for inhibiting a binding event between a selectin and a selectin ligand, said method comprising:

contacting said selectin with a non-sulfated selectin ligand, glycosyl sulfotransferase according to Claim 1 and an agent that inhibits the sulfation activity of said glycosyl sulfotransferase.

17. The method according to Claim 16, wherein said agent is a small molecule.
18. A method of inhibiting a selectin mediated binding event in a mammalian host,
5 said method comprising:
administering to said host an effective amount of a pharmaceutical composition
comprising an active agent that modulates the sulfation activity of a
glycosylsulfotransferase according to Claim 1.
- 10 19. The method according to Claim 18, wherein said active agent inhibits the sulfation
of activity of said glycosyl sulfotransferase.
20. The method according to Claim 19, wherein said agent is a small molecule.
- 15 21. The method according to Claim 19, wherein said agent is an antibody.
22. The method according to Claim 19, wherein said active agent modulates the
expression of said sulfotransferase.
- 20 23. A method of modulating a symptom in a mammalian host of a disease condition
associated with a selectin mediated binding event, said method comprising:
administering to said host a pharmaceutical composition comprising an effective
amount of an active agent that modulates the sulfation activity of a
glycosylsulfotransferase according to Claim 1.
- 25 24. The method according to Claim 23, wherein said symptom is inflammation.
25. A method of diagnosing a disease state in a host related to the abnormal levels of a
glycosyl sulfotransferase according to Claim 1, said method comprising:

determining the amount of an analyte in a sample from said host, wherein said analyte is selected from the group consisting of glycosyl sulfotransferase according to Claim 1 or a nucleic acid related thereto; and

comparing the amount of said analyte in said host sample to a control value.

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26. The method according to Claim 25, wherein said determining is quantitative.

27. The method according to Claim 25, wherein said determining is qualitative.

10 28. A method of determining whether an agent is capable of modulating the activity of glycosylsulfotransferase according to Claim 1, said method comprising:

contacting a glycosylsulfotransferase according to Claim 1 with a sulfate source, an acceptor compound and said agent; and

determining the affect of said agent on said sulfotransferase activity.

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29. A non-human transgenic animal model for gene function, wherein said transgenic animal comprises an introduced alteration in a gene encoding a glycosylsulfotransferase according to Claim 1.